

The Adult Attachment Interview: State of the Art

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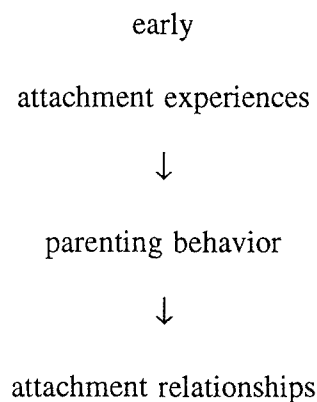
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## The Adult Attachment Interview: State of the Art

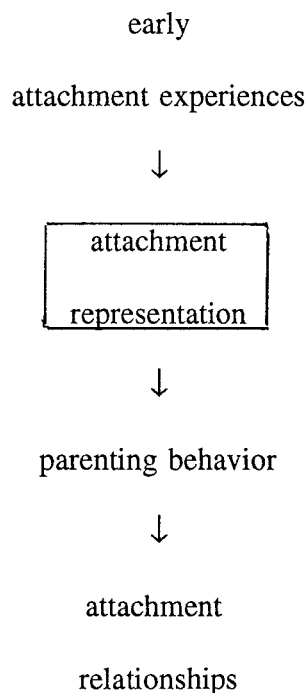
The influence of childhood attachment experiences on attachment relationships in adulthood is an intriguing but complex issue. Clinical and retrospective data seem to suggest that maltreated children are at greater risk for becoming maltreating parents, and that in general troubled parents look back on a troublesome childhood. The basic model is simply the following:



This model heavily emphasizes the continuity of development across the life-span and does not take into account discontinuities caused by contextual or experiential discontinuities. The link between early attachment experiences and later parenting behavior might be broken because of later attachment experiences with parents, intimate friends, spouses or therapists. In attachment theory, it has from the start been suggested that the mental representation or internal working model of past attachment experiences is crucial for understanding continuities and discontinuities in the transmission of attachment across the generations. For decades, adequate measures to assess the adult attachment representations were lacking. In fundamental as well as applied clinical research, self-report measures like the Parent Behavior Inventory (PBI, xxx) and the Mother-Father-Peer Scale (Epstein, 1983) dominated the field, but they showed at least two shortcomings: First, these self-report measures about childhood

experiences with the parents were based on an overly optimistic view on the respondents' autobiographical memory. Second, they did not differentiate between the form and the content of the self-reports, and they therefore were not able to take the age-old issue of repression, dissociation, or idealization of past experiences into account.

The introduction of the Adult Attachment Interview (AAI) by Mary Main and her colleagues in 1985 can be considered a simple but revolutionary shift in attention away from the 'objective' description of past experiences to the current representations, and away from the content of the autobiography to the form in which this autobiography is presented. The AAI is based on two assumptions: First, autobiographical memory is ongoing reconstruction of one's own past - in the light of new experiences; second, repression, dissociation or idealization of the past, i.e. negative childhood experiences, exist and can be traced by studying form and content of the autobiographical narrative separately. According to attachment theory, the basic model of intergenerational transmission of attachment is therefore the following:



Past attachment experiences are always filtered through the current mental representation of attachment in influencing parenting behavior and the construction of new attachment relationships. The model is, of course, strongly simplified and unidimensional: it does not serve any descriptive purpose but only an analytical one. The model makes clear that in attachment theory intergenerational transmission of attachment is interpreted in a quite specific way: in fact all AAI studies available today start their search for the roots of current attachment relationships in the mind of the parents- and not in their past. In this respect, the AAI research shows some affinity to recent studies on parental belief systems and their influence on parenting behavior (Goodnow & ..., 19..).

As I said before the AAI constitutes a simple but radical paradigm shift. The AAI is simple not only in terms of its parsimonious basic assumptions but also in terms of its design. The following description is derived from Bakermans-Kranenburg & Van IJzendoorn, 1993. The AAI is a semi-structured interview that probes alternately for descriptions of the past relationship with parents, specific supportive or contradictory memories, and descriptions of current relationship with parents. After a warming up question about the composition of the family of origin the subjects are asked to present five adjectives describing their childhood relationship to each parent and why they choose these adjectives; to which parent they felt closest; what they did when - as a child - they were upset, hurt, or ill, or when they were separated from their parents; and whether they have ever felt rejected. Besides these questions about experiences in childhood, subjects are asked how they think their adult personalities were affected by these experiences; why, in their view, their parents behaved as they did; and how the relationship with their parents had changed over time. Also some questions are asked about the subjects' experiences of loss through death of important figures, both as a child and as an adult. In total, the AAI consists of 15 questions, with additional probes, and it takes about an hour to carry the interview out (George, Kaplan, & Main, 1985).

The complex coding system of the AAI (Main & Goldwyn, 1991) leads to three classifications indicating three types of attachment representations: the Dismissing category might often have experienced parental rejection; in their current narrative, dismissing subjects often state that they lack memory of autobiographical details, and at the same time they offer a very positive evaluation of their attachment experiences. Some dismissing subjects acknowledge some negative aspects of their childhood but insist on not being influenced negatively by those experiences. In particular because of internal contradictions between general evaluations and specific illustrations, the narrative of dismissing subjects is not very coherent. The Autonomous subjects may or may not have had negative childhood experience but in their current description of their past they present a coherent and balanced picture without internal contradictions or other violations of Grice's rules for an adequate discourse. The Preoccupied subjects often report about overinvolving and sometimes even role-reversing parents. More importantly, they represent their attachment autobiography in great detail, and in an angry or passively enmeshed voice. Their past attachment experiences still keep these subjects in check, and they still transpire to be passively or angrily engaged in the processing of the negative facets of their childhood. In Table 1, the crucial scales for rating experiences and representations are presented, as well as the global scoring pattern for the three main categories. The Table is a simplified overview, and one has to keep in mind that the scale for coherence, for example, can only be described in enough detail in about 20(?) pages (Main, & Goldwyn, 1991)<sup>1</sup>

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Insert Table 1 about here

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In this paper, we want to take stock of the AAI studies sofar. Because the AAI radically breaks with the tradition of self-report measures for attachment experiences, and

initiates a new line of research it has to prove its value in the strictest sense possible. We would like to address here four interrelated and fundamental issues with regard to the value of the AAI as a new instrument to assess attachment representations and to study intergenerational transmission of attachment.

1. How reliable is the AAI? What evidence do we have for its intersubjectivity, that is for its relative independence from the specific person who is carrying out the interview and is coding the resulting transcript? And if we suppose that attachment representations are quite robust against contextual and/or personal changes and perturbations, is the AAI then stable over time? These basic psychometric issues boil down to issues of intercoder reliability, interviewer-effects, and test-retest reliability.
2. Because the AAI requires respondents to dig deep into their autobiographical memory, and to present a coherent narrative about their childhood experiences and current perspectives, the question arises whether the AAI is measuring attachment representations or, alternatively, memory abilities and differences in verbal intelligence and logical reasoning. Because the interview is a semi-structured discourse subjects might also be liable to the social desirability bias. These are issues of discriminant validity, that is, does the AAI measure something else than it promises? In the same context, the question may arise how specific the AAI is. Are we measuring representations of intimate relationships and the emotions involved in these attachments, or are we measuring some broad concept of personality (disorder) and (mal)adaptation?
3. The ultimate proof of the pudding is, of course, in the fulfilling of the AAI's promise to predict the quality of attachment with children, and the responsiveness to the children's signals of stress and anxiety. We expect the AAI to be able to outline the way in which adults as parents will be blocked or hampered by their childhood

attachment experiences in relating to their children's attachment needs and emotions. It is supposed that a secure attachment representation furthers understanding of and open communication about children's negative feelings, whereas a dismissing or preoccupied attachment representation means that the parents' attachment biography is still in the way of a sensitive and open communication about emotions in attachment relationships. Of course, intergenerational transmission of attachment does not take place in a vacuum: An important issue concerns the boundaries of transmission in social contexts that deviate strongly from our Western, industrialized society.

4. If the AAI is a reliable and valid instrument for assessing adult attachment representations, it is useful to know how the three main classifications are distributed in normal populations and in clinical groups. Men are often seen as more dismissing of negative emotions and less focused on attachments than women who would be more inclined to care for other persons. Are attachment representations in men different from those in women? We might also think of adolescents and young adults as more dismissing of their old ties and bonds, or still in the process of separating themselves of their family of origin and childhood identity. Are these expectations borne out by the available data? Last but not least: how are attachment representations distributed in clinical groups? Because many clinical problems have originated in attachment relationships and influence new bonds, the AAI should be expected to differentiate between normal and clinical groups, and maybe within clinical groups as well.

The issues of reliability, discriminant validity, predictive validity, and normative distributions will be addressed on basis of my work with my Leiden co-workers, and my colleagues from Haifa University (Israel) and the University of California at Berkeley (U.S.A.). These studies will be embedded in the large and growing stream of research reports on the AAI. This review, therefore, will be a discussion of most of the AAI studies performed

during the last seven years or so, and is based on earlier empirical and meta-analytic papers.

#### Reliability of the AAI: Stability across time, interviewers, and coders

Interviewer effects. Application of the AAI is a complex process of data collection, preparation, and coding. The interviewers should get extensive training in an interviewing technique that combines the principles of optimal standardization and optimal discourse. The AAI lacks the characteristic evaluative role of the interviewer in a clinical interview, and is more structured than a Rogerian interview. Nevertheless, it differs from a standard, scientific interview in that the interviewer should try to create a discourse - like atmosphere in which the probes lead to an emphasis on the unique, idiosyncratic perspective of the respondents on their autobiography. It is our experience that graduate students with some basic knowledge of attachment theory but without clinical training or interviewing expertise can be trained during a forty hours course to be adequate AAI interviewers. In a study on 83 Dutch mothers five interviewers interviewed each subject twice, in counterbalanced order (Bakermans-Kranenburg & Van IJzendoorn, 1993). We found that the interviewers do not have an important impact on the interview outcome. First, the interviewers did not provoke systematically different AAI classification distributions. All interviewers produced about the same mixture of secure and insecure attachment representations in their discourse with the mothers. Second, each interviewer-pair showed about the same stability of AAI classifications over time. That is, the stability of the interview outcome was not influenced by the specific interviewer-pair. In a replication and extension on 59 Israeli college students (Sagi, Van IJzendoorn et al., in prep.), interviewers who also served as coders participated in a stability study of the AAI. We found that the interview outcome was not influenced by the interviewer who also served as a coder. The roles of interviewer and coder of the same AAI do not appear to be incompatible. In sum, the AAI appears to be immune against interviewer-effects as long as adequate training is



provided.

Intercoder reliability. The interview of about one hour is audiotaped, and transcribed verbatim. The transcription is a time-consuming and cumbersome task, for which detailed and extensive guidelines have been provided (Main, 1992). It is crucial for coding of the formal aspects of the interview that all utterances as well as pauses are indicated in the transcript. The transcription of an interview might easily take more than eight hours, and transcribers should be carefully checked for transcription failures by the interviewers who carried out the interview. To my knowledge, there are no studies on the reliability of the transcription. The intercoder reliability is, of course, established in almost every AAI study on a routine basis. For 18 studies, we found an average intercoder reliability of xx% ( $\kappa$ =xx). The intercoder reliability is moderate, and we should count with a ceiling effect because of the error of measurement component. Test-retest reliability, for example, is restricted if coding errors are potential sources of instability (Van IJzendoorn, 1992). Intercoder reliabilities for AAI scales have been provided in only a few studies (e.g. Fonagy, Steele, & Steele, 1991), and they do not play an important role in the theoretical discussions on adult attachment. The AAI scales might be considered useful steps toward classification instead of representing important aspects of 'reality' (Bakermans-Kranenburg & Van IJzendoorn, 1993).

Test-retest reliability. The Strange Situation procedure for assessing infant-parent attachment was accepted as a useful and sound measure only after the publication of Waters' (1977) seminal study on the stability of attachment across a 6 months period. Under adverse and changing life conditions the Strange Situation outcome has been found to change quite drastically over time (Vaughn; Lamb). From the viewpoint of development as canalization it is not surprising that in the early years development is more malleable (Bowlby, 19..). Because internal working models become more rigid over the years, and the life conditions are being determined more and more by the subjects themselves, less malleability is to be expected

in adulthood. Therefore, it is crucial for a measure of adult attachment representations to be stable over time. If the AAI is measuring internal working models of attachment, it should show quite high test-retest reliability, and if drastic changes occur they should be explained by radical changes in life circumstances. In Table 2, four studies on the test-retest reliability of the AAI are presented.

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Insert Table 2 about here

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Four studies in four different countries provide convincing evidence for the short- and long-term stability of the AAI classifications. Because the maximum stability is lower than 100% - the intercoder reliabilities imply a ceiling effect - we have evidence that in stable life circumstances and in normal populations the stability of the internal working model of attachment is remarkably high and certainly in correspondence with the theoretical expectations (Bowlby, 19..). The high test-retest figures also mean that insecure attachment representations can only be changed through focused supportive or therapeutic efforts or major life-events. Even the birth of a first baby did not have any impact on the attachment representations of the expectant mothers in the Benoit and Parker (in prep.) study.

#### Discriminant validity: Intelligence, memory, and social desirability

Intelligence. The AAI heavily relies on the speech production of the subjects. In coding the AAI, researchers do only take into account the verbatim text of the discourse. Furthermore the coding system heavily emphasizes coherence in the Gricean sense: the discourse should be characterised by the maxims of quality, quantity, manner, and relevance. In this respect, logical reasoning seems to be an important condition for a high degree of coherence. In three studies, the relations between AAI classifications and measures for verbal fluency and logical

reasoning have been explored. Bakermans-Kranenburg and Van IJzendoorn (1993) showed that a verbal IQ test (GIT, Groningen Intelligence Test) and a logical reasoning test (the Raven) were not related to the AAI. Sagi, Van IJzendoorn et al. (in prep.) replicated this result with a college admission test battery in a group of Israeli students. If anything, the dismissing students tended to be somewhat more advanced on this test than the other students. Finally, Crowell, Waters et al. (1993) used a somewhat obscure general IQ test, the Henmon-Nelson test, which was related to the AAI classification. Autonomous mothers scored higher than dismissing or preoccupied mothers on this mental ability test. Crowell, Waters et al. (1993) conclude that IQ should routinely be included as a covariate in AAI studies. The available evidence, however, is inconclusive at best, and most studies point in a different direction: IQ is not a relevant threat to the internal validity of a research design (see Table 3).

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Insert Table 3 about here

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Autobiographical Memory. The AAI contains several questions about the early childhood experiences. Although these experiences do not play a major role in classifying the subjects, the coding system nevertheless indicates that lack of memory of certain childhood events might be interpreted as a sign of insecurity. In case of the dismissing subjects, it is supposed that they are not open to negative aspects of their early attachment relationships and therefore fall back on lack of memory to avoid reflecting or discussing those aspects. An alternative interpretation, of course, would be that the dismissing subjects just are less able to remember as much details from their youth as the other subjects, not because of 'psychodynamic' reasons but because of cognitive deficits. It is therefore crucial to show that the AAI is measuring attachment representations instead of cognitive differences in autobiographical memory in general. In two studies the issue of memory has been addressed in

detail. In a study on 83 Dutch mothers, we designed a self-report measure for autobiographical memory the Long-Term Autobiographical Memory test, LAM. Subjects had to indicate how they evaluate their own long-term and autobiographical memory abilities. Furthermore, a memory test, the Latency of Response to Autobiographical Issues test (LRAI)-was conducted. Latency of response to questions about common issues in childhood not related to family attachment experiences (e.g., colour of the first bike) were measured (Bakermans-Kranenburg & Van IJzendoorn, 1993). The dismissing mothers did not indicate to perceive their autobiographical memory abilities as less developed than the other mothers, and they even performed somewhat better on the LRAI. Dismissing subjects indicate lack of memory for attachment related events in the AAI, but they have better access to their autobiographical memory of attachment-irrelevant issues. In our Israeli study, different tests for autobiographical memory were used, and a pair-associate test for relatively short-term memory (three months) was also included. In the Remote Memory Test subjects were asked to choose among four titles of TV programs, out of which three were 'fake' and one was actually shown during their childhood but not later in their lives several sets of titles were provided. In Galton's Method of Semantic Cuing the subjects were instructed to think of memories from their childhood associated with each of the 12 cue words, and to indicate the age when the event took place. Dismissing subjects did not perform significantly worse than other subjects on these memory tests, although dismissing subjects tended to say that they recalled the information on the Galton Method from a somewhat later age. The average age for recall, however, was 8 years for the dismissing subjects and 7 years for the other subjects. For all subjects, these memories originated during middle childhood and not during later periods of their lives. On basis of these two studies we might safely conclude that autobiographical memory abilities do not interfere with the AAI. The lack of recall restricted to attachment-related issues seems indeed to indicate idealization instead of a simple cognitive failure (see Table 3).

Social Desirability. In an open, semi-structured interview, subjects might be inclined to present their ideas in a socially desirable way. It is very difficult to measure a general response bias of social desirability. It might strongly depend on the content area whether or not subjects want themselves to be seen in a socially desirable light. In two studies, the good old Marlowe-Crowne scale for social desirability was used to try and measure this general tendency. In the literature there is not yet consensus as to an adequate replacement of this widely used measure (Nederhof, pers. comm. 1991). In Holland as well as in the USA social desirability appeared to be unrelated to the AAI classifications of mothers (see Table 3). We might therefore be confident that the idealization of dismissing subjects cannot be totally attributed to this response bias.

Personality and Adjustment. The AAI focusses at the internal working model of attachment. Primary goal is to assess mental representations and behavior within the context of intimate relationships. The AAI not necessarily predicts people's functioning in other relationships, such as relationships between colleagues at work. The AAI is not meant to be a general personality measure that covers the Big Five dimensions of personality functioning across domains. The AAI also should be different from measures assessing physical health. It is important to test whether the AAI is a specific measure, that is, a measure that can be differentiated from traditional personality and adjustment scales. The AAI is embedded within a specific theory, - attachment theory - that emphasizes (internalization of) attachment relationships and its consequences for other areas of functioning. The AAI might therefore very well be related to common personality and adjustment measures, but these relations should not exceed the level beyond which the instruments might be considered to operationalize the same construct. The convergent validity of the AAI should be tested within the attachment domain (infant attachment, parental responsiveness; see next paragraph), and the strength of the relations found in this domain should on average be substantially higher

than the relations with general personality and adjustment measures. If this is not the case, the AAI lacks specificity and a firm foundation in attachment theory (Crowell, Waters et al., 1993). In Table 4, two studies on personality and adjustment are presented.

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Insert Table 4 about here

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In Leiden we studied the relation between the Big Five and the AAI in a sample of 83 mothers. The temperament dimensions of Emotionality, Activity, and Sociability (EAS) were not related to the security of the attachment representations. Furthermore, we did not find a relation between the AAI and self-perceived general health (GHQ, General Health Questionnaire). Crowell, Waters et al. (1993), however, found a significant relation between the Social Adjustment Scale (SAS) and the AAI classifications. Secure mothers were better adjusted than dismissing mothers, who were better adjusted than the preoccupied mothers. Crowell, Waters et al. (1993) conclude that a measure for general social adjustment should be routinely included in AAI studies to provide a potentially relevant covariate. They also state that social adjustment cannot be considered an alternative interpretation for the AAI: the effect size is not large enough to conclude that AAI is only measuring overall social adjustment rather than attachment phenomena. In sum, the AAI may predict the person's functioning in not - attachment-related areas but it is not identical to general personality or adjustment.

Alternative measures. Because the AAI is time-consuming and difficult to implement in large-scale surveys, several alternative paper-and-pencil measures have been proposed. The most popular and widely-used alternative measure is the Hazan & Shaver (1990) self-classification measure for adult attachment style. Other scales focus at a description of past and present relationships with the parents; The Mother-Father-Peer scale of Epstein (1983), the EMBU (...), the Inventory of Parent and Peer Attachment (Armsden & Greenberg, 1987), and

the Adult Attachment Questionnaire (Lichtenstein, Cassidy, & Belsky, 1991). The Berkeley-Leiden Adult Attachment Questionnaire for Unresolved loss and other trauma (BLAAQ-U; Main, Hesse, & Van IJzendoorn, 1993; Main, Van IJzendoorn, & Hesse, 1993) is a screening instrument to compose groups of (un-)resolved subjects for studying in depth the background and consequences of this classification. In Table 5, studies testing these alternative measures against the AAI are presented.

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Insert Table 5 about here

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As can be derived from Table 5, alternative paper-and-pencil measures are easy to develop and apply but difficult to validate. In fact, all measures lack the convergent validity needed to replace the AAI. In some cases, we find small correlations between part of the measures and some dimensions of the AAI, but as yet no measure exists to be used instead of the AAI. The BLAAQ-U shows much promise if we want to discriminate the unresolved AAI classification from the other classifications (about 85% correct discrimination) but the U-classification is of course only part of the AAI outcome. Work is in progress to validate the BLAAQ for all four AAI classifications. In sum, the semi-structured AAI shows discriminant validity if compared to paper-and-pencil measures for attachment biographies and representations. A satisfactory screening device has yet to be developed.

#### Predictive validity: Responsiveness and infant attachment

Infant attachment. The AAI has been developed to explain why some infants are insecurely attached to their parents, whereas other infants become securely attached. In fact, the AAI was constructed to discover systematic differences in attachment representations between parents whose infants showed insecure behavior in stressful situations, and parents

whose infants used them as a secure base to explore the environment. The coding system of the AAI was meant to describe adult attachment representations parallel to the infant classifications as described by Ainsworth et al. (1978) in the coding system for the famous Strange Situation procedure (Main & Goldwyn, 1991). The Strange Situation is a structured laboratory procedure, in which infants are confronted with three stressful components; a strange environment, interaction with a stranger, and two short separations from the caregiver. Infants who actively seek proximity to their caregivers upon reunion, communicate their feelings of stress and distress openly, and then readily return to exploration are classified as secure (B) in their attachment to that caregiver. Infants who feel distressed but at the same time ignore or avoid the caregiver following reunion are classified as insecure-avoidant (A). These infants are not able to communicate their feelings of anxiety and stress because in the past they have experienced disappointing dismissal of those feelings on the part of their caregiver. Infants who combine strong proximity- and contact-seeking with contact resistance are classified insecure-ambivalent (C). Those infants show their anxiety and distress in an angry way, as if they want to punish their caregiver for having gone away. The ambivalent infants cannot be comforted easily during the first three minutes of the reunion, and they are not inclined to return to play and to explore the environment. In the balance between attachment and exploration, ambivalent infants maximize (insecure) attachment behaviors. Avoidant infants minimize or de-activate attachment behaviors, and try to make their upset emotions invisible. Secure infants strike a balance between activating attachment behaviors upon reunion, and returning to exploration after a few minutes. Both the Strange Situation classifications and the AAI classifications are based upon the notion of communication about emotions between intimate partners in stressful situation. In Figure 1, the correspondence between the Strange Situation and the AAI along the lines of communication about emotions is presented. Autonomous caregivers



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Insert Figure 1 about here

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are hypothesized to stimulate a secure attachment relationship with their children; dismissing caregivers would stimulate an insecure-avoidant bond, whereas preoccupied caregivers would be inclined to establish an insecure-ambivalent relationship with their children.

We found 18 studies addressing the issue of the relation between AAI and Strange Situation classifications. Three studies were from Holland: Van IJzendoorn et al. (1991) and Bus and Van IJzendoorn (1992) on mothers, and Van IJzendoorn et al. (1992) on fathers. Other studies on fathers were: Main and Goldwyn (in press); Radojevic (1992); Steele et al. (in prep.). The remaining studies included mothers. We performed three meta-analyses on these studies. First, we combined effect sizes for the relation between autonomous parents and secure children. The combined effect size  $d = 1.06$ , which is comparable to a significant  $r = .47$ . The effect size is impressively strong. The studies on mothers showed a stronger effect size ( $r = .50$ ) than those on fathers ( $r = .37$ ). The four studies with a prospective design - including a prenatal AAI (Fonagy, Steele, & Steele, 1991; Ward and Carlson, in press; Radojevic, 1992; and Benoit and Parker, 1993) - did not deviate from the studies with a concurrent or retrospective design (Van IJzendoorn, 1993). Prospective designs are, of course, important in that they can show the causal direction of the relation between parental and infant attachment. Even if the child has not been able to influence any characteristic of the parental attachment representation, this prenatal representation predicts the quality of infant-parent attachment after a year quite adequately. Alternative explanations involving a third factor determining both the adult and the infant attachment are less plausible too. Our discriminant validity studies showed that parental IQ and temperament were not relevant for the AAI classifications. Therefore, hereditary IQ and temperament are not involved in establishing the relation between AAI and

Strange Situation classifications. The combined effect size of .47 is based on 853 dyads, and it would take another 1087 studies with null results to diminish the combined probability level to insignificance (Van IJzendoorn, 1993).

For the dismissing parents, we found about the same effect size:  $r = .45$ , and maternal dismissing attachment was more strongly related to children's avoidance than was paternal dismissing attachment ( $r = .50$  versus  $r = .32$ ). For the preoccupied parents, an effect size of  $r = .42$  was found. Fathers and mothers did not differ in predictability of preoccupation. In Figure 1, the effect sizes have been indicated. In Van IJzendoorn (1993), details about the unresolved/disorganized categories have been described. The bottom line is that the unresolved adult attachment category significantly predicts the children's disorganized status ( $r = .31$ ), but in that case, the preoccupied -ambivalent attachment link becomes much weaker ( $r = .19$ ). In the current context, we are not able to provide more information and speculation about the unresolved AAI classification (see Van IJzendoorn, 1993).

Sensitive responsiveness. If infants' attachments are related to adult representations we should be able to describe the process through which mental representations influence the infants' behaviors in a stressful situation. We do not expect any mysterious transfer of mind models across generations. It is a sound working hypothesis to suppose that any transmission of attachment should at least partly be based on behavioral interactions, besides genetic links. In attachment theory, the best candidate for the link between adult attachment and infant attachment is, of course, sensitive responsiveness. Parental attachment representations determine the way the parents are inclined to communicate about emotions in intimate relationships, in particular in the attachment relationship with their children. If parents are inclined to dismiss their negative feelings about their own childhood experiences, they might also be inclined to be less open to their infants' feelings of anxiety and distress. If parents are still very preoccupied with their own attachment experiences as a child, these past experiences

may be in the way of an open and balanced communication about their children's feelings in stressful situations. In fact, these preoccupied parents might even feel threatened by the negative and ambivalent emotions of their own children as they remind them of their own past. Only an autonomous and balanced view of childhood attachment experiences might pave the way for a fluent and open communication about the children's anxieties and distresses.

In ten studies on 389 dyads, the AAI classifications have been related to measures for sensitive responsiveness. Three of these studies were carried out in Holland (Van IJzendoorn et al., 1991, for mothers and fathers separately; Bus & Van IJzendoorn, 1992). Some studies used the traditional Ainsworth rating scale for sensitivity at home (Grossmann et al., 1988); Ward & Carlson, in press), whereas other studies used laboratory observation of instructional activities (Crowell & Feldman, 1988; Crowell et al., 1991; Cohn et al., 1992; Das-Eiden et al., 1993). Within studies, often more than one scale for sensitive responsiveness was used, and we combined these measures through separate meta-analyses (Van IJzendoorn, 1993). The overall effect size for the ten studies combined was equal to  $r = .34$ , and it would take more than 155 studies with null results to bring the significant probability-value for this effect size back to the critical alpha level. This effect size describes the global relation between security of parental attachment representations and sensitive responsiveness. We were not able to differentiate between the dismissing and preoccupied classifications in relation to a certain degree or quality of responsiveness, e.g. over- or under stimulation. In too many studies, the relevant data were lacking to perform a meta-analysis to test this hypothesis.

The rather modest effect size for the relation between AAI and sensitive responsiveness leads to a 'transmission gap' - a concept that was introduced in an earlier paper (Van IJzendoorn, 1993). Because only part of the influence of parental attachment representations on infant attachment security can be explained by the mediating force of sensitive responsiveness, the complete process of intergenerational transmission of attachment still remains to be

explained. To quantify our ignorance, we need information about the link between sensitive responsiveness and infant attachment security. Preliminary results of a meta-analysis on this issue, performed by De Wolf in cooperation with Van der Veer and myself, showed that the studies using traditional Ainsworth measures in the home setting only explained about 7 % of the variation in infant attachment security. The combined effect size of 14 studies including 883 parent-infant dyads, was  $r = .27$  (De Wolff, Van IJzendoorn, & Van der Veer, in prep.). This information leads to the following model, derived from Van IJzendoorn (1993) but with an updated figure for the link between infant attachment and parental responsiveness:

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Insert Figure 2 about here

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Figure 2 shows that the process of intergenerational transmission of attachment is still largely a mystery. Although the link through sensitive responsiveness explains some aspects of this process, it remains unexplained for the better part. Elsewhere, we speculated (1) that correlated errors of measurement might play a role (arrows I and II); (2) that some genetic mechanism might be at stake; and (3) that the measures for sensitive responsiveness cover only part of what is going on between parent and child in stressful situations, e.g. that facial expressions may be more important than is acknowledged in current measurement procedures for responsiveness (Van IJzendoorn, 1993). The transmission gap is a focus of a new Leiden research project started last year (Schuengel et al.). In sum, Figures 1 and 2 show that the AAI fulfills its promises in its predictions of infant attachment and parental responsiveness for father as well as for mother. Nevertheless, much of the process through which parental attachment representations are being translated into a certain quality of infant-parent attachment relationship remains elusive.

Contextual constraints. Ecological constraints for intergenerational transmission of

attachment have to be studied for two reasons. First, although parental attachment representations predict a large part of the infant attachment security, there is still room for discontinuity. Even an effect size of about  $r = .50$  means that some autonomous parents have insecurely attached infants, and that some insecure parents have securely attached infants. These exceptions to the general rule seem important for generating knowledge about the process of intergenerational transmission of attachment on the case level. Second, the adult attachment paradigm largely ignores the fact that intergenerational transmission of attachment is embedded in a specific social context. Most studies on transmission of attachment have been carried out in western, industrialized countries with similar family constellations. In a very discrepant ecological context, the general law of intergenerational transmission might be restricted. In other words, we should test the contextual limits of the transmission phenomenon before jumping to the conclusion that a universal law without any cultural restrictions and conditions is at stake.

The Israeli kibbutzim appear to provide a child-rearing context in which the universality of intergenerational transmission may be tested to its limits. In particular the kibbutzim with communal sleeping practice deviate strongly from the 'normal' western patterns of childrearing and family life (Aviezer, Van IJzendoorn, Sagi, & Schuengel, 1993). In the communal arrangement, children spend only three to four afternoon hours at home; during the day and at night they are under the care of professional caregivers or watchwomen. Whereas the family-based kibbutzim appear to be similar to a collection of dual-earner families with full-time day-care, the communal kibbutzim more radically deviate from this common pattern, in organizing a collective sleeping arrangement even for the very young infants, away from the family. The care at night is provided by a few watchwomen who have to supervise all infants and children through intercoms. It should be clear that sensitive responsiveness to infants' signals of anxiety and distress at night is absolutely impossible. In

cooperation with Avi Sagi and co-workers at Haifa University we studied the intergenerational transmission of attachment in the two types of kibbutzim described before: Communal and family-based kibbutzim. In fact, we applied a quasi-experimental design to test contextual constraints, and compared 20 mother-infant dyads from communal kibbutzim to 25 mother-infant dyads from family-based kibbutzim. Although subjects could not be randomly assigned to both groups, we measured several potentially intervening variables to see whether the two groups - communal and family-based- were comparable (see Sagi, Van IJzendoorn et al., 1993, for details). The parents and their children were comparable, except for the crucial difference of the sleeping arrangement.

In the communal kibbutzim, we found much more insecurely attached infants than in the family-based kibbutzim. The distribution in the family-based environment was similar to the distribution of attachment classifications in normal, western families, and it even showed a somewhat higher percentage of secure infant-mother attachments (80%; see Sagi, Van IJzendoorn et al, in press). In the communal arrangements, however, the insecure attachments prevailed. In fact, this finding shows that the deviant attachment distribution reported earlier by Sagi et al. (1985) is restricted to the communal kibbutzim, and should not be generalized to all kibbutzim, or even to all Israeli families as has sometimes been done in the past (Van IJzendoorn, & Kroonenberg, 1988). In accordance with the quasi-experimental nature of the design, the distribution of maternal attachment representations in both types of kibbutzim was about the same: 65% and 72% secure mothers in the communal and family-based arrangements respectively. In Table 6, the infant and maternal attachments have been presented (simplified version of the corresponding table in Sagi, Van IJzendoorn et al., 1993).

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Insert Table 6 about here

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From Table 6, it can be derived that the three-way interaction between type of kibbutz, infant attachment classification, and maternal attachment classification was significant. That is, depending upon the childrearing context the intergenerational transmission of attachment is present or absent. In the regular, family-based kibbutzim we see the expected correspondence between maternal and infant attachment (76% of correspondence). In the idiosyncratic setting of the communal kibbutzim, however, the limits of the transmission become visible. In this specific childrearing context, which appears to be unique in human history (Aviezer et al., 1993), intergenerational transmission is more exception than rule. Most mismatches between infant and maternal attachment concern secure mothers with insecure infants. Because of the inconsistent childrearing pattern in the communal arrangement, the transmission process is blocked, and the harsh and insensitive context overrules the influence of the secure working model of mothers. Two factors seem important: First, the infants spend only few hours per day with the mother. We have seen that the intergenerational transmission of paternal attachment is somewhat less strong compared to the mothers, maybe because some fathers spend too few hours with their infants to really make a difference. Second, during the night the infants might feel deserted by their attachment figures. Although they experience sensitive care during the afternoon, during the night their attachment behaviors and expressions of anxious emotions remain unanswered. The recurrent and prolonged separation experience might induce feelings of insecurity even in case of secure mothering during parts of the day (Sagi, Van IJzendoorn et al., 1993).

##### 5. Distributions of AAI classifications in normal and clinical groups.

The standard distribution. In the foregoing paragraphs, we showed that the AAI is a reliable and valid instrument to measure adult attachment representations. Because the AAI is time-consuming and difficult to apply in large samples, the meta-analytic combination of

disparate, small-scaled studies might provide us with normative data about AAI classification distributions. More than 2000 AAI interviews have been collected, transcribed, and coded thus far, and this impressive number of classifications might be a firm data-base to derive some standard distributions from. In Table 7, the normative data are summarized (derived from Van IJzendoorn, & Bakermans-Kranenburg, 1993).

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Insert Table 7 about here

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It is interesting to see that the distribution of AAI classifications in normal mother samples shows a quite modest majority of autonomous mothers (57%). Compared to the distribution of normal infant attachment classifications (21% avoidingly, 67% securely, and 12% ambivalently attached infants; Van IJzendoorn et al., 1992), the overall or standard AAI distribution shows an underrepresentation of autonomous mothers, and an overrepresentation of preoccupied mothers. The percentage of insecure mothers (43%) is indeed unexpectedly high. In addition, if the unresolved category is taken into account, almost one-fifth of the normal mothers is classified as unresolved with respect to loss of an attachment figure or to trauma of other kinds. Because only few autonomous mothers are classified unresolved as well, the majority remains secure (55%; see Van IJzendoorn & Bakermans-Kranenburg, 1993, for details). Whether mothers came from the USA or from other countries, and from lower or middle socio-economic status does not make a difference for the distribution. In this respect, the standard AAI distribution appears to be quite robust against modest contextual differences. It is also intriguing to see that the fathers show a strikingly similar distribution compared to the standard distribution of maternal attachment representations. Fathers do not appear to be more dismissing of attachment experiences and emotions than their female counterparts. Within 226 couples (a combination of data from Cohn, Silver, Cowan, Cowan, & Pierson,



1992; Crittenden, Partridge, & Claussen, 1991; Miehl, 1989; Steele et al., 1993; and Van IJzendoorn et al., 1991), we found that autonomous wives prefer autonomous husbands (and reverse). Many autonomous wives, however, are married to insecure husbands: one-third of the autonomous wives is married to a dismissing or preoccupied husband. And many autonomous husbands are married to dismissing or preoccupied wives (about one-third again). Although there is a tendency to stabilization of (in-)security across generations within families, at the same time there are many exceptions to the rule that husbands and wives share the same working model of attachment. Therefore many chances for breaking the intergenerational cycle of insecurity exist (Rutter et al., 19..). The AAI classification distribution in the combined adolescent samples again are highly similar to the standard distribution. We have to keep in mind that the samples included here (Kobak & Sceery, 1988; Allen & Hauser, 1991; Main, Van IJzendoorn, & Hesse, 1993; Sagi, Van IJzendoorn et al., 1993) did not recruit their subjects from early adolescence, but from late adolescence and early adulthood. We hypothesize that transitions in attachment representations take place during early adolescence, when the adolescents strive for more independence and autonomy. It remains remarkable, however, that life-events such as finishing school, getting married, and getting children do not seem to have much impact on attachment representations. At least on the level of global distributions such an effect cannot be traced. We do not yet have longitudinal data that might test this supposition on the individual level.

Clinical groups. The AAI has become increasingly popular in clinical psychology, developmental psychopathology, and child psychiatry. The AAI is considered to be promising as a diagnostic tool which is embedded in a strong and convincing theory. Furthermore, the AAI is supposed to be useful as an evaluative instrument for therapeutic processes. Lastly, the AAI connects knowledge of normal development with insights into abnormal development. The application of the AAI to clinical groups - adults with psychiatric problems and children

with problem behavior - has lead to two basic hypotheses. First, clinical groups are supposed to show an overrepresentation of insecure attachment representations compared to the standard distribution. Clinical problems might be rooted in the attachment biography of adult patients or parents of the troubled children. Second, it is hypothesized that externalizing problems such as oppositional behavior is rooted in a dismissing representation of attachment, whereas internalizing problems such as depressive symptoms are linked to a preoccupied attachment representation (Rosenstein & Horowitz, 1993).

A large variety of clinical groups have been studied with the AAI: children with oppositional behavior disorder (Crowell & Feldman, 1988; Crowell et al., 1991; DeKlyen, 1991; Rosenstein & Horowitz, 1993); failure-to-thrive infants (Benoit, Zeanah, & Barton, 1989); infants with severe acute and chronic illnesses (Benoit et al., 1989); pregnant adolescent girls from impoverished environments (Ward & Carlson, in press); children with sleep disorders (Benoit et al., 1992); maltreating parents (Crittenden et al., 1991); young adults who were psychiatrically hospitalized in adolescence (Allen & Hauser, 1991); high risk children from very low SES (Davidson, Chazan, & Easterbrooks, 1993); depression (Rosenstein & Horowitz, 1993; Patrick, Hobson, Castle, Haward, & Maughan, 1992); and borderline personality disorders (Patrick et al., 1992). The combined clinical groups show indeed a strong overrepresentation of insecure subjects of both kinds: dismissing and preoccupied (see Table 7). Whether the clinical problems are primarily located in the adults or in the children does not make a difference for the overall distributions. The hypothesis about the relation of a specific kind of psychiatric disturbance - externalizing or internalizing - to a specific type of adult attachment representation could not be confirmed on basis of our data-base (Van IJzendoorn & Bakermans-Kranenburg, 1993). Some studies showed a clear link between externalizing problems and dismissing attachment on the one hand, and internalizing problems and preoccupied attachment on the other hand (e.g. Rosenstein & Horowitz, 1993), whereas other

studies did not present a clear picture at all (Patrick et al., 1992). In Figure 3, the clinical samples have been graphically displayed against the background of the standard distribution (derived from Van IJzendoorn & Bakermans-Kranenburg, 1993).

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Insert Figure 3 about here

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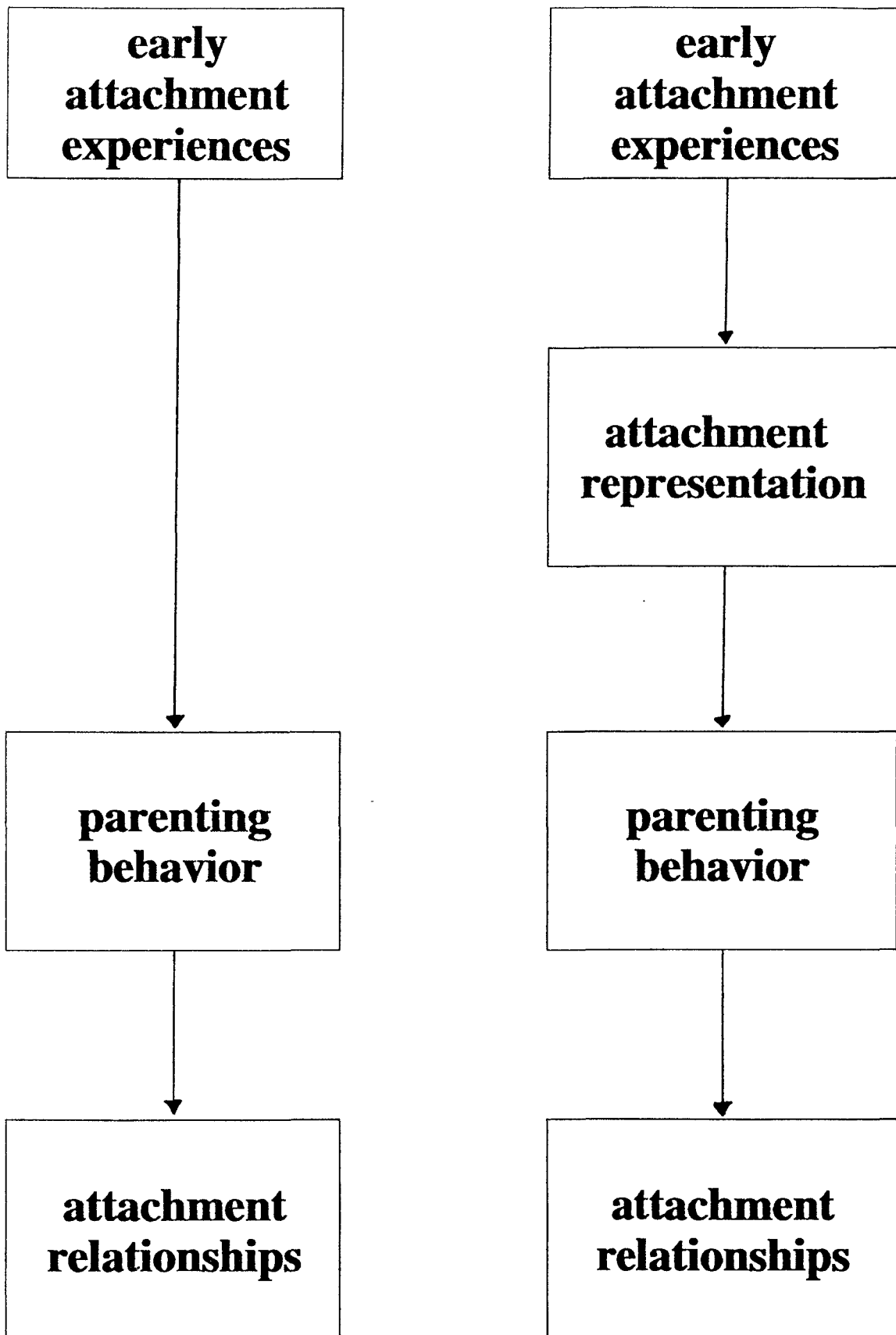
Figure 3 shows how discrepant the clinical samples are from the normal, standard distribution which is located at the cross-road of the three arrows, each indicating an AAI classification. It should also be noted, how close to the origin, that is the standard distribution, the distributions for the fathers and for the adolescents are. The center of gravity for the clinical samples, however, is located far away from this origin, and indicates an overrepresentation of preoccupied as well as dismissing subjects. Parents of children with sleep disorders show an overrepresentation of dismissing attachment representations, whereas parents of failure-to-thrive infants are characterized by a preoccupied orientation. The plot does not show a clear differentiation between conduct and oppositional disorders in combination with dismissing attachment on the one hand, and depression in combination with preoccupied attachment on the other hand. Maltreating parents, however, appear to be more preoccupied than dismissing. Clinical studies with the AAI are difficult to carry out; the data-base for systematic inferences about type of disorder in relation to the kind of attachment representation is still rather small.

In sum, the AAI is a reliable and valid but time-consuming instrument assessing as mental representations of attachment. Alternative measures are not yet available. Attachment is indeed transmitted across generations, but the transmission process is still largely unknown. In exceptional childrearing conditions such as the collective kibbutz arrangement,

intergenerational transmission of attachment might be overruled by contextual constraints. The majority of normal fathers and mothers is securely attached, but only a small minority of subjects in clinical groups are autonomous. We do not know yet the systematic links between clinical syndrome and type of attachment insecurity.

Note: 1. Because of limited space, we will not discuss the classification for unresolved loss or other trauma (U).

## Intergenerational transmission of attachment



# **Adult Attachment Interview (AAI)**

## **(Mary Main and co-workers)**

**15 open questions + probes**

**clusters:**

- . adjectives +illustrations**
- . stressful situations**
- . development of relationship**
- . influence on adult personality**
- . loss and trauma**

**verbatim transcription**

**coding:**

- . form versus content**
- . communication about emotions**
- . coherence and openness**

**Table 1: Simplified model of the AAI coding system**

AAI Classifications				
AAI				
dimensions	Dismissing (DS)	Autonomous (F)	Preoccupied (E)	
<u>Experiences</u>				
. love	-	+/-	-	-
. rejection	+	+/-	-	-
. involvement	-	+/-	+	+
<u>Representations</u>				
. memory	-	+	+	+
. idealisation	+	-	-	-
. anger	-	-	+	+
. passivity	-	-	+	+
. coherence	-	+	-	-
+	= more or less present			
-	= more or less absent			

## **Central Issues**

- 1. How reliable is the AAI?**
  - . interviewer-effect**
  - . intercoder reliability**
  - . stability over time**
  
- 2. How different is the AAI?**
  - . intelligence**
  - . memory**
  - . social desirability**
  - . personality**
  - . alternative measures**
  
- 3. Does intergenerational transmission of attachment exist?**
  - . infant attachment**
  - . sensitive responsiveness**
  - . contextual constraints**
  
- 4. How are adult attachment representations distributed?**
  - . mothers**
  - . fathers**
  - . adolescents**
  - . clinical groups**



**Table 2: Test-retest reliability of the AAI**

Studies	Time Interval (months)	AAI classifications				N	Subjects
		Total	Ds	F	E		
1. Bakermans & Van IJzendoorn (1993)	2	78%	70%	83%	76%	83	Dutch mothers
2. Sagi, Van IJzendoorn et al. (in press)	3	90%	86%	90%	100%	59	Israeli students
3. Steele & Steele (in press)	1	77%	?	?	?	26	English staff/ students
4. Benoit & Parker (in prep.)	12	90%	60%	97%	87%	84	Canadian mothers

Table 3: Discriminant validity of the AAI: Cognition, Memory, Social Desirability

Test	N	p	subjects	trend/direction
<u>Intelligence</u>				
GIT (verbal IQ) <sup>1</sup>	83	.80	Dutch mothers	- - -
Raven <sup>1</sup>	83	.19	Dutch mothers	- - -
College admission test <sup>2</sup>	59	.10	Israeli students	Ds>F>E
Henman-Nelson test <sup>3</sup>	50	<.05	American mothers	F>Ds>E
<u>Memory</u>				
LAM (self-report) <sup>1</sup>	83	.72	Dutch mothers	- - -
LRAI (latency time) <sup>1</sup>	83	.07	Dutch mothers	Ds>F;E
Remote Memory Test (TV) <sup>2</sup>	59	.78	Israeli students	- - -
Galton's Semantic Cuing (N) <sup>2</sup>	59	.66	Israeli students	- - -
Galton's Semantic Cuing (Age) <sup>2</sup>	59	.06	Israeli students	E>F>Ds
Pair-Associate Test <sup>2</sup>	59	.84	Israeli students	- - -
<u>Social Desirability</u>				
Marlowe-Crowne <sup>1</sup>	83	.39	Dutch mothers	- - -
Marlowe-Crowne <sup>3</sup>	50	>.10	American mothers	- - -

Notes: 1. Bakermans-Kranenburg & Van IJzendoorn (1993)

2. Sagi, Van IJzendoorn et al. (in prep.)

3. Crowell, Waters et al. (1993)

**Table 4: Discriminant validity of the AAI: General Personality and Adjustment**

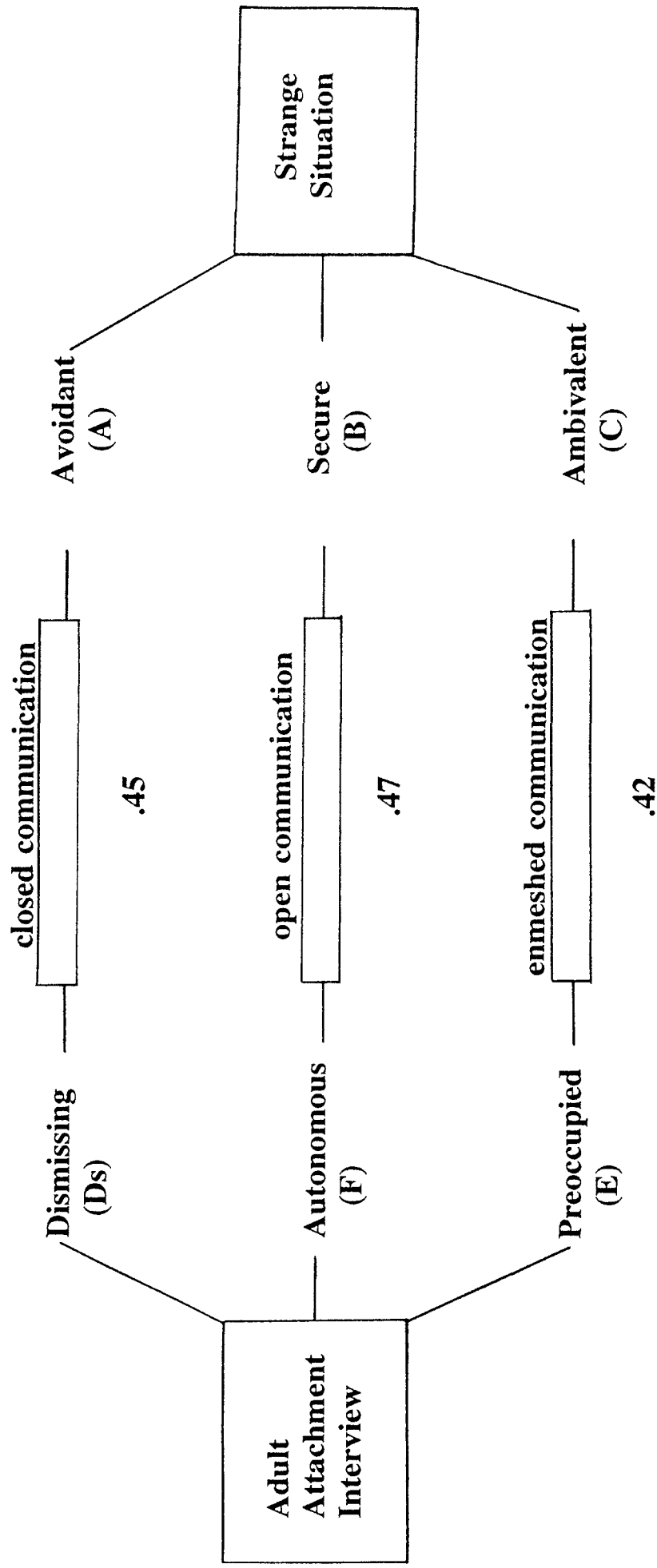
Tests	N	p	subjects	direction
Temperament (EAS) <sup>1</sup>	83	n.s.	Dutch mothers	
Health (GHQ) <sup>1</sup>	83	n.s.	Dutch mothers	
Social Adjustment (SAS) <sup>2</sup>	53	<.001	American mothers	F>Ds>E

Notes:

1. Bakermans-Kranenburg, De Haas & Van IJzendoorn (1993)

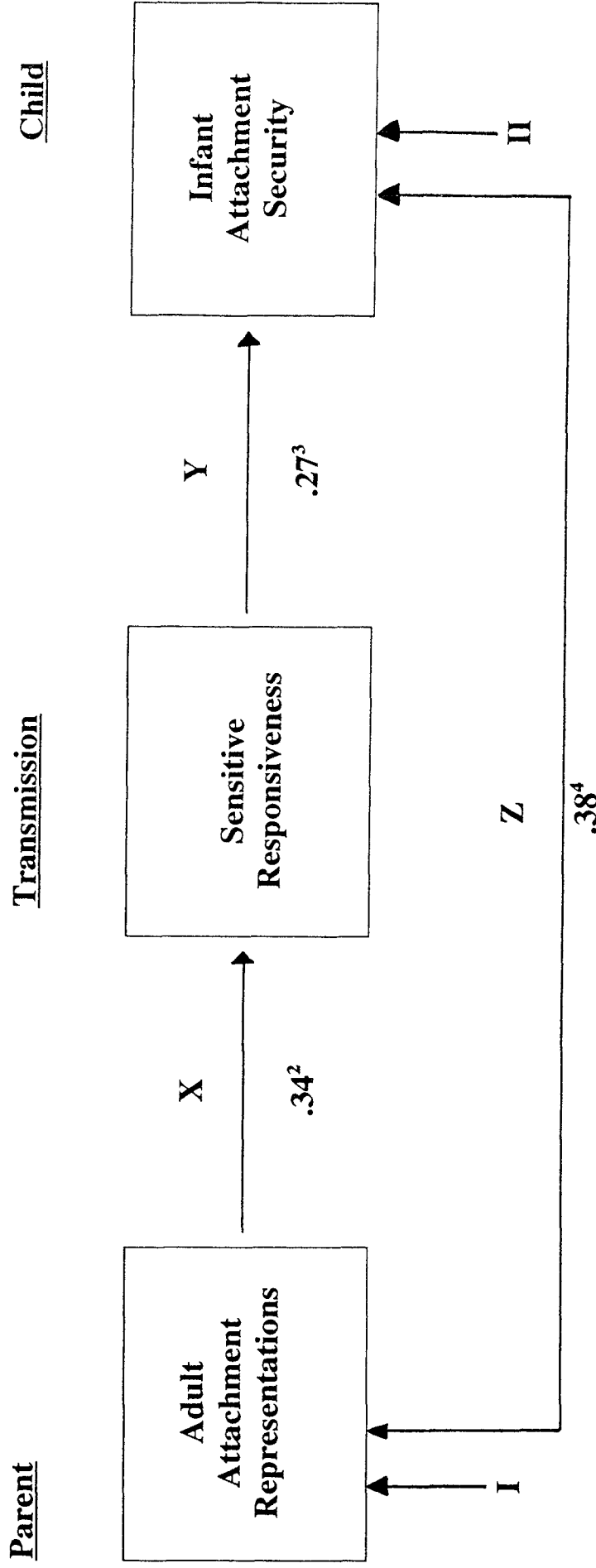
2. Crowell, Waters et al. (1993)

**Figure 1: Predictive validity of the AAI: Relation with Infant-Mother Attachment**



Note: Effect sizes based on 18 studies including 853 parent-child dyads, derived from Van IJzendoorn, 1993

**Figure 2: Predictive validity of the AAI: Relation with Responsiveness<sup>1</sup> and Attachment**



**Notes:**

1. Derived from Van IJzendoorn (1993)
2. Effect size based on 10 studies including 389 parent-child dyads
3. Effect size based on 14 studies including xxx parent-child dyads (derived from De Wolff, Van IJzendoorn, & Van der Veer, in prep.; studies using Ainsworth scales in natural settings)
4.  $X * Y + Z = \text{total effect size for AAI} \rightarrow \text{Strange Situation}; (.34 * .27) + .38 = .47$

**Table 5: Correspondence between Infant and Maternal Attachment in the Communal and Family-Based Kibbutz<sup>1</sup>**

<b>Strange Situation</b>	<b><u>Communal</u></b>		<b><u>Family-Based</u></b>		<b><u>Total</u><sup>2</sup></b>
	<b>Autonomous</b>	<b>Insecure</b>	<b>Autonomous</b>	<b>Insecure</b>	<b>Autonomous Insecure</b>
<b>Secure</b>	6	5	16	4	22      9
<b>Insecure</b>	7	2	2	3	9      5
<b>Correspondence</b>	<b>40%</b>		<b>76%</b>		<b>60%</b>

Note:

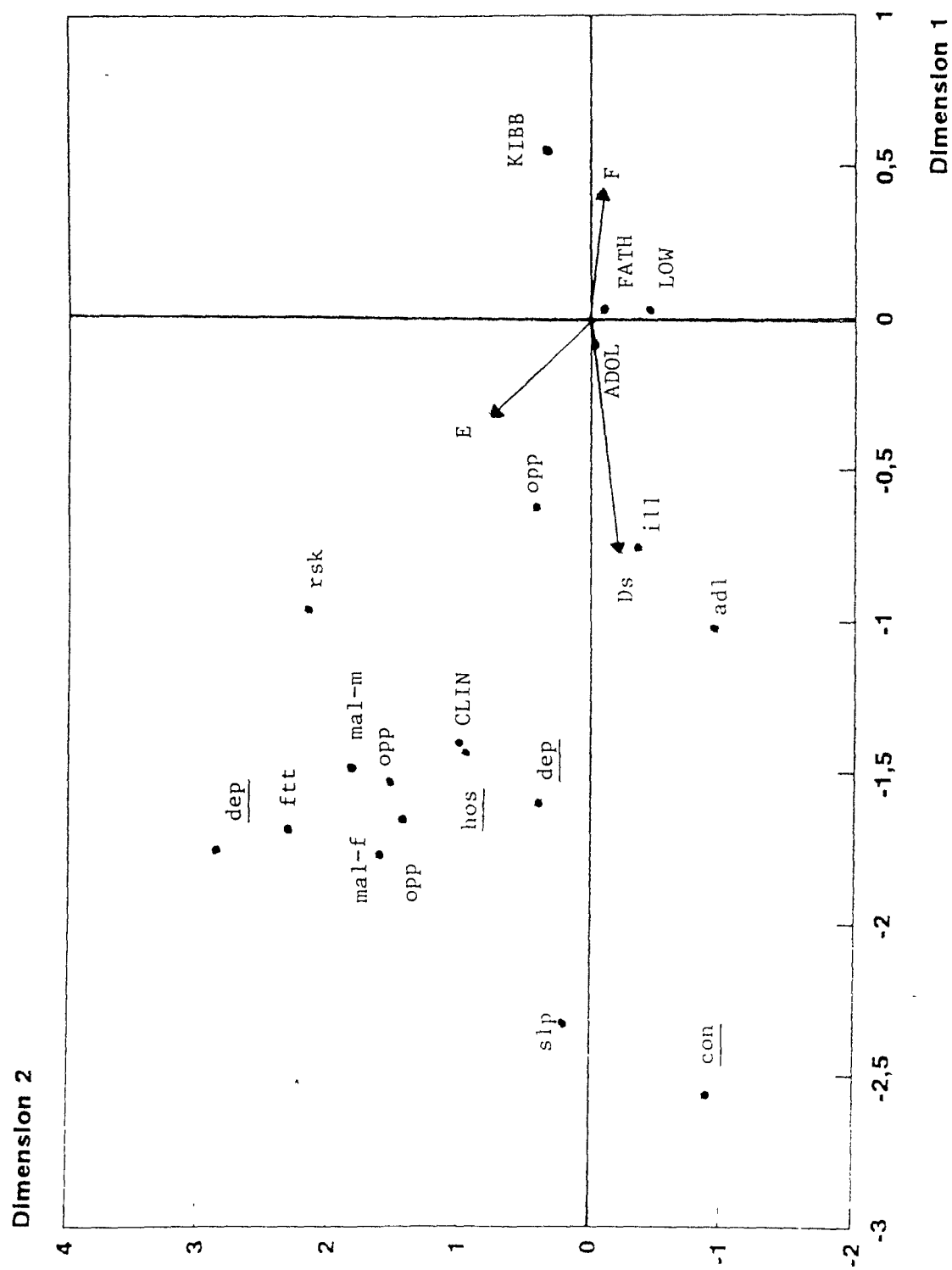
1. Derived from Sagi, Van IJzendoorn et al. (in prep.)
2. Three-way interaction in the loglinear model: Sleep x Infant x Mother  
parameter estimate = -.32,  $Z = -1.89$ ,  $p < .05$

**Table 6: Distributions of AAI classifications in normal and clinical samples<sup>1</sup>**

Population	N	Percentages		
		Ds	F	E
Normal Mothers	604	24%	57%	19%
Normal Fathers	306	25%	58%	17%
Low SES	214	28%	60%	12%
Kibbutz Mothers	45	11%	69%	20%
Adolescents	237	26%	56%	19%
Clinical Adults	292	44%	18%	38%
Clinical Children	217	37%	18%	44%
Total Clinical	509	41%	18%	41%

**Note: 1. Derived from Van IJzendoorn & Bakermans-Kranenburg (1993)**

Figure 3: Graphical display of AAI classification distributions in normal and clinical samples





## Conclusions

- 1. The AAI is a semi-structured but psychometrically sound instrument.**
- 2. Intergenerational transmission of attachment is an established fact (at least in common Western childrearing arrangements).**
- 3. Parental attachment representations are only partly transmitted through sensitive responsiveness (the transmission gap).**
- 4. A small majority of normal parents and adolescents is autonomous, whereas a small minority of clinical subjects is autonomous.**
- 5. Externalizing problems are not necessarily linked to dismissing attachment representations; internalizing problems are not necessarily linked to preoccupied representations.**